

STRUCTURES AND METHODS FOR INTEGRATION OF ULTRALOW-K
DIELECTRICS WITH IMPROVED RELIABILITY

ABSTRACT

An improved back end of the line (BEOL) interconnect structure comprising an ultralow k (ULK) dielectric is provided. The structure may be of the single or dual damascene type and comprises a dense thin dielectric layer (TDL) between a metal barrier layer and the ULK dielectric. Disclosed are also methods of fabrication of BEOL interconnect structures, including (i) methods in which a dense TDL is provided on etched opening of a ULK dielectric and (ii) methods in which a ULK dielectric is placed in a process chamber on a cold chuck, a sealing agent is added to the process chamber, and an activation step is performed.